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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/621,343	07/18/2003	Shigenori Togashi	503.42954X00	2501

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EXAMINER

BUI, THACH H

ART UNIT	PAPER NUMBER
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3752

DATE MAILED: 08/19/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/621,343

Applicant(s)

TOGASHI ET AL.

Examiner

Thach H Bui

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

1. The preliminary amendment filed August 19, 2003 has been received and entered.

Information Disclosure Statement

2. Applicant's prior art citation filed July 18, 2003 has been received, considered and placed of record.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-5 and 7 are rejected under 35 U.S.C. 102(e) as being anticipated by Haltiner, Jr. et al. (U.S. Patent No. 6,766,969).

As per claims 1, 2, 4 and 7, Haltiner, Jr. et al. teach a fuel injection valve comprising a member having an injection hole and a valve seat and a spray director unit (32) located at the upstream side of the injection hole in the direction of fuel flow (see Fig. 2). The apparatus includes a valve body (82) which is moveable to effect opening and closing of a fuel passage in connection with the valve seat and a driving means for driving the valve body (solenoid coil). The member (32) comprises at least one groove (circular in shape) and a projecting portion provided around the injection hole along the

circumference thereof (54, 50) (see Fig. 3-5). The plate member (32) includes a plurality of injection holes (56) penetrating the plate member in the thickness direction thereof. The plate member further comprises a flat portion (52) of which is provided between the respective injection holes on the face of the plate member and the groove (54) forms along the circumferential direction around the respective injection holes (see fig. 2 and 3).

As per claim 3, Haltiner, Jr. et al. teach a plate member having injection holes of which are separated by the flat portion; and the distance between the groove formed around the injection hole and the injection hole is smaller than the length of the flat portion formed between the injection holes (see Fig. 3).

As per claim 5, Haltiner, Jr. et al. teach at least one groove forms a V-shape (see Fig. 4 and 5).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Haltiner, Jr. et al.

Haltiner, Jr. et al. have all the features of the invention but Haltiner, Jr. et al. do not explicitly teaching the inclination angle of the inner wall near each injection hole of

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the V-shaped grooves provided in connection with the respective injection holes on the face of the plate member is large in comparison with the inclination angle of the inner wall thereof remote from the injection hole. It would have been obvious to one skilled artisan in the art to design the inclination angle of the inner wall near each injection hole of the V-shaped grooves provided in connection with the respective injection holes on the face of the plate member is large in comparison with the inclination angle of the inner wall thereof remote from the injection hole to achieve highest performance of the fuel injector.

Conclusion

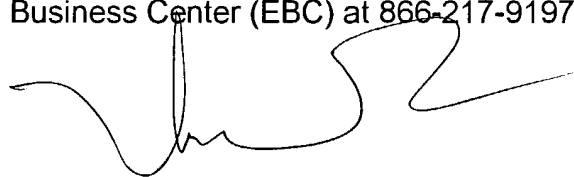
5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Cranford, Wieczorek and Muller et al. are cited of general interest.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thach H Bui whose telephone number is 703-305-0063. The examiner can normally be reached on Monday-Friday, 7:30-4 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Mar can be reached on 703-308-2087. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to be 'T.B.', written over the text of the paragraph.

T.B.
08/08/2004